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Pentagon targets a water pollutant

Perchlorate alternative sought for rocket fuels

By Chris Bowman -- Bee Staff Writer

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Faced with mounting evidence of a national drinking water threat, the Pentagon has launched a top-priority search for an environmentally safer alternative to a rocket fuel ingredient deemed essential to national defense.

The move to find a substitute for perchlorate signals a growing recognition of the chemical's widespread infiltration into well water and its potential to impair hormone production and brain development, especially in infants and fetuses.

The perchlorate threat is especially acute in California because of the large number of military operations and defense contractors, such as Aerojet's rocket-manufacturing plant in Rancho Cordova where the chemical has contaminated many wells. Compounding the problem is the state's heavy reliance on groundwater for drinking water.

A top Pentagon official disclosed the decision to find a perchlorate substitute in an interview with The Bee on Monday, at the beginning of a weeklong series of meetings with California officials.

"We are very concerned about perchlorate contamination," said John Paul Woodley, assistant deputy undersecretary of defense. "The Department of Defense's Environmental Research and Development has established as its number one priority the remediation of perchlorate and finding a substitute."

The Army already is taking steps to replace perchlorate used in smoke bombs and other explosives, Woodley said.

Little known to most Californians, perchlorate -- the oxidizer used to speed combustion in rocketry for more than 50 years -- is corrupting far more drinking water wells in the state than has the gasoline additive MTBE, which is being phased out of the state's fuel supply.

While nearly every public well has been tested for MTBE, only one-third have been checked for perchlorate.

As of July, however, water suppliers already have found 405 perchlorate-contaminated wells, compared to 88 contaminated with MTBE, state health department figures show.

And while the Legislature's mandated phaseout of MTBE -- methyl tertiary butyl ether -- is well under way, perchlorate is just beginning to surface on its agenda.

California officials applauded the Pentagon's decision Tuesday, but said it does not diminish the immediate need to stop the spread of perchlorate underground and restore the hundreds of contaminated wells.

"Even if all perchlorate could be replaced in explosives and rocket motors tomorrow, it doesn't address the legacy of perchlorate," said Winston Hickox, head of California's Environmental Protection Agency.

California officials are still in the early stages of identifying the sources of perchlorate and have not begun naming potentially responsible polluters. While most

contamination is defense-related, it is not yet clear what portion of the cleanups taxpayers will end up paying for.

The Defense Department is paying for 88 percent of the multimillion-dollar cleanups in Rancho Cordova and a former Aerojet plant in the San Gabriel Valley.

Replacing perchlorate won't be easy or cheap, Woodley said. The move would require an extensive overhaul of the military's rockets, missiles, various explosives and even NASA's space shuttles.

"It's an essential ingredient in the national defense weapons system," Woodley said. "We couldn't operate the system without it."

Rancho Cordova, in particular, has lost more than a dozen of its wells largely because of perchlorate seeping from the Aerojet plant, which has made and tested rocket engines since the 1950s. Aerojet contends some of the pollution may stem from the historic use of Chilean fertilizers, which use the chemical.

The defense contractor nevertheless has poured millions of dollars into perchlorate testing, a pump-and-treat perchlorate cleansing system and an experimental project using microbes to break down the chemical in the ground.

Many more municipal wells have been closed recently in western San Bernardino and Riverside counties as a result of decade-old disposal practices by defense and fireworks industries.

"It's wonderful they are talking about replacing perchlorate, but for now we have to concentrate on the cleanup," said state Sen. Nell Soto, D-Ontario, whose district, particularly the cities of Rialto, Colton and Fontana, is the hardest hit in the state.

"Our cities are concerned about having to start buying water if we don't start cleaning it up," Soto said.

On Tuesday, Woodley gave state environmental officials hope that the Pentagon would accelerate its perchlorate testing to help identify the areas of greatest risk.

"He made no bones about the idea that perchlorate has raised some very serious public health problems and risks everywhere, and most particularly here in California," Hickox said. "He believes that measurable and concrete results can be attained in a very short period of time."

Hickox said he feared the Pentagon would stall on his agency's request for help in assessing the extent of the California contamination. Pentagon officials earlier had indicated they would not take action until regulators had set a water contamination limit on perchlorate.

California is expected to set its level by January. Federal officials are not expected to develop a national standard before 2006.

An ongoing Defense Department survey of contaminated sites so far lists 37 active and closed military operations and defense industry plants and Department of Energy and NASA sites in California.

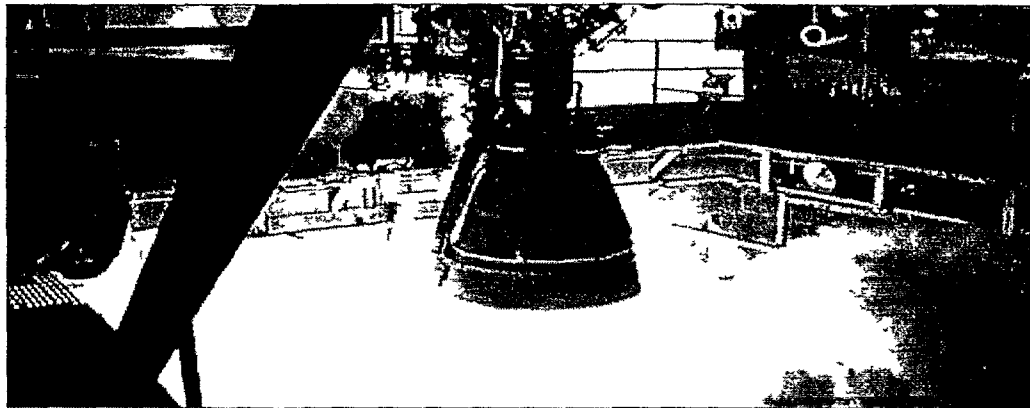
Perchlorate, a chemical salt manufactured mainly for rocket propulsion but also for fireworks and even auto air bags, doesn't break down in soil or water and bypasses conventional drinking water filtration systems.

While high levels of perchlorate impair the thyroid gland, scientists are struggling to determine the effect, if any, of drinking minute amounts of the chemical over a period of years.

Federal EPA officials say the bulk of the estimated 20 million people exposed to the chemical live in Los Angeles, San Diego and other Southern California cities that take some of their water from the Colorado River.

An estimated 1,000 pounds of perchlorate leaks into the river daily from a former perchlorate plant near Las Vegas, the EPA says.

THEN Starting in the 1950s, Aerojet builds and tests rocket motors with fuels containing aluminum perchlorate at its plant 15 miles from Sacramento. Now Rancho Cordova. Over decades, perchlorate leaches into the groundwater.



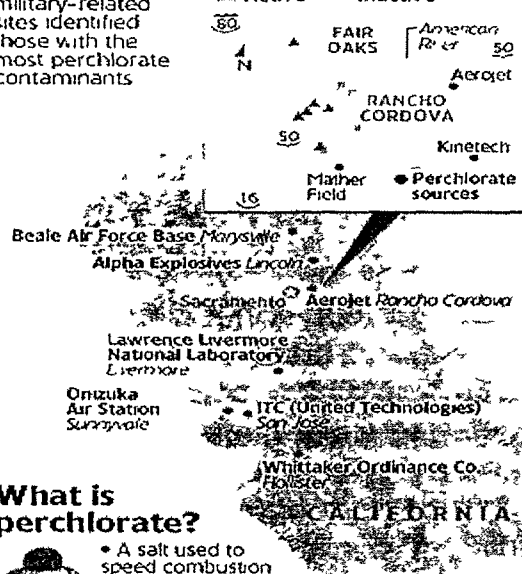
Sacramento Bee file

Where is perchlorate?

An ongoing Department of Defense survey of California's military-related sites identified those with the most perchlorate contaminants.

Contaminated wells in Rancho Cordova area

▲ Active □ Inactive

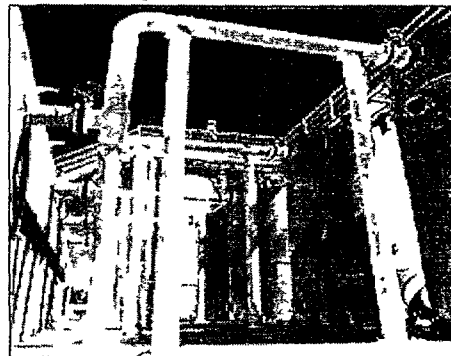


What is perchlorate?



- A salt used to speed combustion of solid rocket fuel. It is also found in flares and commercial explosives.
- Easily dissolves, now found in groundwater in 22 states.
- Disrupts production of thyroid hormone in adults; disrupts brain development in fetuses.

NOW Aerojet is using a multimillion-dollar network of wells, pipes and five treatment plants at its Rancho Cordova plant to extract, transport and purify contaminated groundwater.



Sacramento Bee file, 2002 Anne Chadwick Williams

Perchlorate-contaminated drinking water sources in California

By county:

